IN THE CLAIMS:

MARKED-UP VERSION OF THE AMENDED CLAIMS

1. (currently amended) A water jet device for separating of a biological structure, essentially comprising a pressure water flow generator (1), an operatable control and automatic water control unit (2) and a supply capillary (3) with a separating nozzle (14), wherein a separating water jet exits from the separating nozzle (14), wherein the separating nozzle (14) is furnished with a nozzle channel (15) with a circular cross-section and wherein the separating nozzle (14) is disposed at the distal end of the supply capillary (3),

wherein the separating nozzle (14)~~, as is known in principle,~~ is disposed fixedly positioned and coaxial to the supply capillary (3) and wherein the nozzle channel (15) is furnished with at least one spiral groove (16) and wherein the number of the spiral grooves (16) and the diameter and the length of the nozzle channel (15) are placed in such a ratio to each other that the separating water jet subjected to pressure is rotated.

2. (previously presented) The water jet device according to claim 1

wherein the nozzle channel (15) is a hollow cylinder,

wherein a slope of the spiral grooves (16) is dimensioned larger than the diameter of the nozzle channel (15) and wherein the spiral grooves are recessed into the hollow cylinder and exhibit a slope angle of from about 30 to 45 degrees.

3. (previously presented)The water jet device according to claim 2 wherein the spiral grooves (16) exhibit a rounded cross-sectional shape.

4. (previously presented)The water jet device according to claim 1 wherein the supply capillary (3) is equipped with one or several additional separating tools for mechanical working of the biological structure in the region of the separating nozzle (14) of the supply capillary (3).

5. (previously presented)The water jet device according to claim 1 wherein the supply capillary (3) is made out of a current conducting material and is connectable to a high frequency current supply device.

6. (previously presented) A water jet device for separating of a biological structure comprising

a pressure water flow generator;

an operatable control and automatic water control unit;

a supply capillary connected to the pressure water flow generator;

a separating nozzle attached to the supply capillary and wherein the separating nozzle is disposed at the distal end of the supply capillary, wherein the separating nozzle is disposed fixedly positioned and coaxial at the supply capillary ,

wherein the separating nozzle is furnished with a nozzle channel for forming a water jet to exit from the separating nozzle;

at least one spiral groove furnished in the nozzle channel and wherein the spiral groove and the diameter and the length of the nozzle channel are placed in such a ratio to each other that the flowing stream of water in the nozzle channel subjected to pressure is rotated and a rotating water jet is released by the nozzle channel.

7. (previously presented) The water jet device according to claim 6 wherein the nozzle channel is formed as a hollow cylinder,

wherein a slope of the spiral groove is dimensioned larger than the diameter of the nozzle channel and wherein the spiral groove exhibits a slope angle of from about 30 to 45 degrees.

8. (previously presented)The water jet device according to claim 7 wherein the spiral groove is recessed into the hollow cylinder of the nozzle channel,

wherein the spiral groove exhibits a rounded cross-sectional shape.

9. (previously presented)The water jet device according to claim 6 wherein the supply capillary is equipped with one or several additional separating tools for mechanical working of the biological structure in the region of the separating nozzle of the supply capillary.

10. (previously presented) The water jet device according to claim 6 wherein the supply capillary is made out of a current conducting material and is connectable to a high frequency current supply device.

11. (previously presented) The water jet device according to claim 6 wherein the nozzle channel has a circular cross-section modified by the cross-section of the spiral groove.

12. (previously presented) The water jet device according to claim 6 further comprising

a second spiral groove disposed running parallel to the first spiral groove in the nozzle channel.

13. (previously presented) The water jet device according to claim 6 wherein the separating nozzle has an overall shape of a hollow cylinder and wherein the nozzle channel has a shape of a hollow cylinder bore modified by the placing of the spiral groove.

14. (currently amended) A water jet device for separating of a biological structure, essentially comprising a pressure water flow generator (1), an operatable control and automatic water control unit (2) and a supply capillary (3) with a separating nozzle (14),

wherein an axis of the separating nozzle (14) coincides in direction with an adjacently disposed axis of the supply capillary (3),

wherein the separating water jet exits from the separating nozzle (14),

wherein the separating nozzle (14) is furnished with a nozzle channel (15) with a circular cross-section and wherein the separating nozzle (14) is disposed at a distal end of the supply capillary (3),

wherein the separating nozzle (14) is disposed fixedly positioned and coaxial to the supply capillary (3) and wherein the nozzle channel (15) is furnished with at least one twisted groove (16) and wherein the number of the twisted grooves (16) and the diameter and the length of the nozzle channel (15) are placed in such a ratio to each other that the separating jet subjected to pressure is rotated.

15. (previously presented) A water jet device for separating of a biological structure comprising

a pressure flow generator;

an operatable control and automatic control unit;

a supply capillary connected to the pressure flow generator;

a separating nozzle attached to the supply capillary and wherein the separating nozzle is disposed at a distal end of the supply capillary, wherein the separating nozzle is disposed fixedly positioned and coaxial at the supply capillary,

wherein the separating nozzle is furnished with a nozzle channel for forming a water jet to exit from the separating nozzle;

at least one spiral groove furnished in the nozzle channel and wherein the spiral groove and the diameter and the length of the nozzle channel are placed in such a ratio to each other that the flowing stream of water in the nozzle channel subjected to pressure is rotated and a rotating water jet is released by the nozzle channel;

a pressure line leading from the pressure flow generator to the operatable control and automatic control unit;

a connectable pulse generator placed into the pressure line.

16. (previously presented) The water jet device according to claim 15 further comprising

a laser device switched in parallel to the pulse generator.

17. (previously presented) The water jet device according to claim 15 further comprising

a heating device switched in parallel to the pulse generator.

18. (previously presented) The water jet device according to claim 15 further comprising

a freezing device switched in parallel to the pulse generator.

19. (previously presented) The water jet device according to claim 15 further comprising

a discharge capillary disposed parallel to the supply capillary and connected to the operatable control and automatic control unit through a discharge line;

an automatically controllable discharge pump connected to the discharge line.

20. (previously presented) The water jet device according to claim 13 wherein the

hollow cylinder has a length of an inner cylinder which is from about 1 to 5 times the diameter of the inner cylinder;

wherein the inner cylinder is furnished with spiral grooves;

wherein the width of the spiral grooves is 0.08 to 0.2 times the diameter of the inner cylinder of the nozzle;

wherein the depth of the spiral grooves is 0.2 to 0.4 times the width of the spiral grooves.

21. (previously presented) A method for separating biological structures comprising the steps of:

furnishing a water jet device including a pressure flow generator, an operatable control and automatic control unit, a supply capillary connected to the pressure flow generator, a separating nozzle attached to the supply capillary and wherein the separating nozzle is disposed at the distal end of the supply capillary, wherein the separating nozzle is disposed fixedly positioned and coaxial at the supply capillary;

making the water jet ready for operation such that the water jet is available with a correspondingly pre-programmed pressure, quantity and temperature ready for calling;

inserting, puncturing and piercing the supply capillary into the tissue;

leading the supply capillary into a boundary layer region of different tissues;

applying liquid in this boundary layer region in the following through the supply capillary;

forming an expansion space between different tissues; and pressing tissues apart from each other with the expansion space.

22. (previously presented) The method for separating biological structures according to claim 21 further comprising the steps of:

dissecting soft tissue components here already at the lowest pressures;

tensioning hard or elastic structures while remaining initially still uninjured.

23. (previously presented) The method for separating biological structures according to claim 21 further comprising the steps of:

supporting a dissecting process by a pulsating water jet in case of very firmly at each other resting structures.

24. (previously presented) The method for separating biological structures according to claim 21 further comprising the steps of:

deflecting a laminar flow of the water jet by spiral grooves disposed in a nozzle channel of the separating nozzle;

initiating a rotary motion in circumferential direction of the water;

directing a flow force of the water jet into the separating nozzle to be thereby subdivided into an axial remaining force component and a radially added force component;

forming a rotated water jet, where the laminar flow remains in the water jet since the tracks of motion of the individual water particles remain running further parallel to each other.

25. (previously presented) The method for separating biological structures according to claim 24 further comprising the steps of:

interacting a radially acting force component with the water jet and transposing the water jet increasingly into a region close to the circumference, where the water particles move with an increased circumferential speed;

forming a closed circulating separating edge in a form comparable to a wood drill in this region of the water jet, wherein this separating edge exhibits naturally an increased separating force relative to a straight water jet.

26. (previously presented) The method for separating biological structures according to claim 21 further comprising the steps of:

withdrawing a water amount entered through the supply capillary again from the tissue region through the discharge capillary if desired.

27. (previously presented) The water jet device according to claim 1 further comprising

a pressure line leading from the pressure water flow generator to the operatable control and automatic water control unit;

a connectable water pulse generator placed into the pressure line.

28. (currently amended) A water jet device for separating of a biological structure comprising

a pressure water flow generator for water;

an operatable control and automatic water control unit;

a supply capillary connected to the pressure water flow generator for supporting a flow of the water from the pressure water flow generator;

a separating nozzle attached to the supply capillary and wherein the separating nozzle is disposed at a distal end of the supply capillary, wherein the separating nozzle is disposed fixedly positioned and coaxial at the supply capillary for guiding water coming from the supply capillary,

wherein the separating nozzle is furnished with a nozzle channel for forming a water jet to exit from the separating nozzle;

at least one spiral groove furnished in the nozzle channel and wherein the spiral groove and the diameter and the length of the nozzle channel are placed in such a ratio to each other that the flowing stream of water in the nozzle channel subjected to pressure is rotated and a rotating water jet is released by the nozzle channel.

29. (currently amended) The water jet device according to claim 30 wherein the separating nozzle comprises a nozzle stone (22) inserted into the supply capillary, wherein the nozzle stone (22) is formed as a ring adapted to be fitted into the supply capillary with an outer cylinder surface wherein the supply capillary provides that a laminar flow of water is generated and passes into the nozzle stone (22), wherein a handle (24) with a contour suitable for gripping supports the supply capillary, wherein an inner

cylindrical surface of the nozzle stone is furnished with spiral grooves (16), wherein the rotating water jet remains integrated after exiting from the nozzle stone (22) [[(220]], wherein the rotating water jet receives sufficient linear and rotary energy to prevail against air resistance outside of the nozzle stone (22) and to further deliver the cutting action in the biological structure.

30. (previously presented) A water jet device for separating of a biological structure comprising

a pressure water flow generator;

an operatable control and automatic water control unit;

a supply capillary connected to the pressure water flow generator;

a separating nozzle attached to the supply capillary and wherein the separating nozzle is disposed at the distal end of the supply capillary, wherein the separating nozzle is disposed fixedly positioned and coaxial at the supply capillary ,

wherein the separating nozzle is furnished with a nozzle channel for forming a water jet to exit from the separating nozzle.

31. (previously presented) The water jet device according to claim 30 further comprising

a pressure line leading from the pressure water flow generator to the operatable control and automatic water control unit;

a connectable water pulse generator placed into the pressure line.

32. (previously presented) The water jet device according to claim 31 further comprising

a laser device switched in parallel to the water pulse generator.

33. (previously presented) The water jet device according to claim 31 further comprising

a heating device switched in parallel to the water pulse generator.

34. (previously presented) The water jet device according to claim 31 further comprising

a freezing device switched in parallel to the water pulse generator.

35. (previously presented) The water jet device according to claim 30 further comprising

a discharge capillary disposed parallel to the supply capillary and connected to the operatable control and automatic water control unit through a discharge line;

an automatically controllable water discharge pump connected to the discharge line.

36. (previously presented) The water jet device according to claim 30 wherein the separating nozzle is unprotected and unshielded for immediate engagement with the biological structure to be separated.

37. (previously presented) The water jet device according to claim 30 wherein the separating nozzle is protruding from the supply capillary as a separate projection.

38. (previously presented) The water jet device according to claim 30 wherein the separating nozzle has a blank front end not protected by other structures for furnishing a separating water jet having a laminar flow of

water and wherein the blank front end furnishes uninhibited engagement of the separating nozzle with the biological structure.

protruding from the supply capillary as a separate projection.

39. (previously presented) The water jet device according to claim 30 wherein the nozzle channel is formed as a hollow cylinder and wherein the hollow cylinder extends up to a discharge end of the separating nozzle.

40. (previously presented) The water jet device according to claim 30 further comprising

a discharge capillary disposed parallel to the supply capillary and connected to the operatable control and automatic water control unit through a discharge line, wherein the separating nozzle and an open end of the discharge capillary are disposed neighboring in a common projecting structure for an immediate engagement with a biological structure;

an automatically controllable water discharge pump connected to the discharge line.

41. (new) The water jet device according to claim 30 further comprising

water disposed in the supply capillary and in the separating nozzle.

42. (new) The water jet device according to claim 30 wherein only a single separating nozzle with a single nozzle channel is present.

43. (new) The water jet device according to claim 30 wherein the separating nozzle essentially consists of a single nozzle channel.

44. (new) The water jet device according to claim 43 further comprising a spiral groove disposed in the single nozzle channel for generating a stable rotating water-jet.

45. (new) The water jet device according to claim 30 wherein the nozzle channel is adapted to eject a stable stream of water.

46. (new) The water jet device according to claim 30 wherein the nozzle channel is constructed for an essentially incompressible aqueous liquid to be formed as a stable aqueous jet.

47. (new) The water jet device according to claim 46 wherein an exit end of the nozzle channel has a cylindrical shape for ejecting the stable aqueous jet with a round cross-section.

48. (new) The water jet device according to claim 45 wherein an exit end of the nozzle channel has an inner cylindrical shape with an inner spiral groove for ejecting a rotating aqueous jet with a round cross-section.

49. (new) A method for separating biological structures comprising the steps of:

furnishing a pressure flow generator;

connecting an operatable control and automatic control unit to the pressure flow generator;

connecting a supply capillary to the pressure flow generator;

attaching a separating nozzle to the supply capillary such that the separating nozzle becomes disposed at a distal end of the supply capillary and disposed fixedly positioned and coaxial relative to the supply capillary;

feeding an aqueous liquid to the pressure flow generator and from the pressure flow generator to the separating nozzle;

directing an aqueous jet released by the separating nozzle toward a biological structure.

50. (new) The method for separating biological structures according to claim 49 further comprising the steps of:

making the water jet ready for operation such that the water jet is available with a correspondingly pre-programmed pressure, quantity and temperature ready for calling;

inserting, puncturing and piercing the supply capillary into the tissue;

51. (new) The method for separating biological structures according to claim 49 further comprising the steps of:

leading the supply capillary into a boundary layer region of different tissues;

applying aqueous liquid in this boundary layer region in the following through the supply capillary;

forming an expansion space between different tissues; and

pressing tissues apart from each other with the expansion space.

52. (new) The method for separating biological structures according to claim 49 further comprising the steps of:

forming the aqueous liquid into a beam having a round cross-section with an inner cylindrically shaped exit section of the separating nozzle.

53. (new) The method for separating biological structures according to claim 49 further comprising the steps of:

forming the aqueous liquid into a rotating beam having a round cross-section with an inner cylindrically shaped exit section of the separating nozzle, wherein a spiral groove is furnished at the surface of the inner cylindrically shaped exit section.

REMARKS

Claims 1 through 40 continue to be in the case.

New claims 41 through 53 are being introduced.

New claim 41 are based on features of the invention believed to be distinguishing over the reference Kaga et al.

New claims 49 through 51 are based on the language of claim 21.

New claims 52 and 53 recite language defining the shape of the generated aqueous jet.

The Office Action mailed on March 11, 2004 refers to Claim Rejections - 35 USC § 103.

2. Claims 1-14, 20 stand rejected under 35 U.S.C. 103(x) as being unpatentable over Kaga et al. (U.S. Patent No. 5,609,781).

Kaga et al. teach a device comprising a pressure flow generator (see Fig. 38-42), an automatic control unit (20), a supply capillary connected to a high frequency current supply device e.g. gas (see Fig. 38-42) and a separating nozzle having a circular cross section (2).

Applicant respectfully disagrees.

The reference Kaga et al. is directed to a laser machining head for laser cutting and laser machining apparatus for controlling the laser machining head (reference Kaga et al., column 1, lines 10 to 12).

The present invention is directed to a water-jet device for separating a biological structure.

As the reference Kaga et al. is directed to laser cutting, there is no direction within the four corners of the reference Kaga et al. to do anything else but laser cutting and in particular no direction to a water-jet device to separate biological structures, there is nothing obvious relating to a water-jet device in the teaching of Kaga et al. relating to a laser machining head.

The reference Kaga et al. teaches a main assist gas nozzle 1 (column 8, line 26) and a sub assist gas nozzle 2 (column 8, lines 8 and 9). The Office Action identifies the nozzle (2) of the Kaga et al. reference with the separating nozzle (14) of applicant's claim 1. However, claim 1 of the applicant associates spiral grooves (16) with the separating nozzle (14), the reference Kaga et al. does not associate any static wings with the sub assist gas nozzle (2).

Furthermore, the present invention is directed to a water-jet device for separating a biological structure. The corresponding German patent

application and the corresponding European patent application were classified in international class A61B 17/32 by the German and, respectively, European patent offices. International class A61B 17/32 relates to surgical instruments of human medicine and of veterinary medicine. It is prohibited in this field to employ gas laser apparatus such as taught in the reference Kaga et al.

The subject matter of the present invention and of the reference Kaga et al. are in principle different based on the different media employed: water and gas. There is no obviousness relating to such different processing media. This situation may be clear to anybody who has seen a gas station: The air hose and the gasoline hose are completely separate and have nothing in common.

Furthermore, a person of ordinary skill in the art constructing a water-jet device of medical technology in international class A61B 17/32 would not try to gather suggestions from the international class 23K 26/14 relating exclusively to laser cutting devices for metal processing, and to which class the reference Kaga et al. belongs.

If a person of ordinary skill in the art in surgical instruments in human medicine and veterinary medicine would encounter the reference Kaga et al.,

such person would not be able to make good use of it for the following six reasons.

1. The reference Kaga et al. teaches laser cutting under oxidative conditions and this is a no-no in surgical technology.
2. The reference Kaga et al. does not employ water in cutting operations, but instead employs a gas mixture, which is prohibited in medical technology.
3. The reference Kaga et al. teaches not a single nozzle channel 15, but instead both a main assist gas nozzle 1 (column 8, line 26) and a sub assist gas nozzle 2 (column 8, lines 8 and 9) having two separate nozzle exit openings (compare for example reference Kaga et al., Fig. 30).
4. The reference Kaga et al. does not have a cylindrical section of a single nozzle channel 15, but teaches both a main assist gas nozzle 1 (column 8, line 26) and a sub assist gas nozzle 2 (column 8, lines 8 and 9), where both nozzles run out conically at their distal ends (for example compare Fig. 10A of the reference Kaga et al.)
5. The reference Kaga et al. does not teach a single nozzle channel 15 with at least one spiral groove 16, but two nozzles 1 and 2, wherein

the Office Action identifies the nozzle 2 of Kaga et al. with applicant's nozzle channel 15, wherein only the nozzle 1 of Kaga et al. is furnished with spiral grooves 5. In contrast, the nozzle 2 of Kaga et al. is not associated with any elements, which would generate a rotary gas motion.

6. While the spiral grooves of the applicant generate a water jet beam rotating around the axis of the water jet beam, the reference Kaga et al does not furnish any rotary motion to the outer gas stream of the outer nozzle 2. Only the inner gas stream of the inner nozzle 1 of the reference Kaga et al. is rotated, however with the limited goal of better mixing the inner gas stream and the outer gas stream. The resulting gas stream from mixing the inner gas stream with the outer gas stream does not exhibit any rotary motion when exiting the exit nozzle 2a.

The Office Action continues that the nozzle is disposed fixedly positioned and coaxial with the supply capillary (see Fig. 38-42); further, the nozzle includes at least one twisted groove, wherein the number of twisted

grooves and the diameter and the length of he nozzle channel are placed in such a ratio to each other that the separating jet subjected to pressure is rotated (see Fig. 10B, 10C, 11A and 11 B).

Applicant respectfully disagrees.

The present applicant presents a nozzle for water, which is essentially an incompressible medium, which nozzle has a cylindrical output channel for generating a stable jet beam of water. In clear contrast, the reference Kaga et al. teaches in Fig. 10B, 10C, 11A and 11 B two conical output channels, apparently to increase the gas speed at the exit point of the gas. Such nozzle of the reference Kaga et al. would be clearly contrary to the purpose of the present application to produce a stable water-jet.

The Office Action continues that Kaga et al. have all the features of the invention but Kaga et al. failed to teach a water jet device and the slope of the spiral flutes is dimensioned larger than the diameter of the nozzle channel and wherein the spiral flutes exhibit a slope angle of from about 30 to 45 degrees. It would have been obvious to one having ordinary skills in the art at the time the invention was made to substitute gas jet for water jet for dispensing. Furthermore, it would have been obvious to one skilled

artisan in the art to have the slope of the spiral flutes is dimensioned larger than the diameter of the nozzle channel and wherein the spiral flutes exhibit a slope angle of from about 30 to 45 degrees to achieve a better flow and the jet is subjected to a rotating pressure.

Applicant respectfully disagrees.

The reference Kaga et al. fails to teach the basic requirements of a water-jet device. Since Kaga et al. fails to cover the basics of a water-jet device, no person of ordinary skill in the art would look to the reference Kaga et al. for inspiration relative to the construction of a water-jet device and the considerations of the Office Action relative to obviousness of applicant's claims are clearly based on hindsight in view of the present invention.

The Office Action asserts above that "It would have been obvious to one having ordinary skills in the art at the time the invention was made to substitute gas jet for water jet for dispensing."

Neither the nozzles of Kaga et al. nor the nozzle of the present invention are for dispensing. The nozzles of Kaga et al. deliver assist gas for assisting in laser cutting. The nozzle of the present invention delivers a water-jet for separating biological structures. The nozzles employed in the

two situations are clearly different: Kaga et al teaches a conically converging end section of the nozzles for increasing gas speed and the present application discloses an inner cylindrical end section for generating a round water-jet.

There is no suggestion in the Office Action to employ a conical end section of the reference Kaga et al. to any nozzle of the present application even though the reference Kaga et al. teaches redundantly to employ such a conical end section of the nozzles. Applicants invention would be clearly inoperable with the nozzles 1, 2 of the reference Kaga et al. used as a substitute. It appears to be overbearing, when the Office Action alleges obviousness of applicant's claims in view of Kaga et al., where the prominent feature of nozzles with conical end sections of Kaga et al. by substitution in applicant's invention would lead to a non-operable water-jet device.

The Office Action continues that Kaga et al. have all the features of the invention but Kaga et al. do not mention specifically the hollow cylinder of the nozzle has a length of an inner cylinder which is from about 1 to 5 times the diameter of the inner cylinder, the width of the spiral grooves in 0.08-0.2 times the diameter of the inner cylinder of the nozzle and the depth

of the spiral grooves is 0.2-0.4 times the width of the spiral grooves. It would have been obvious matter of design choice to have the hollow cylinder of the nozzle has a length of an inner cylinder which is from about 1 to 5 times the diameter of the inner cylinder, the width of the spiral grooves in 0.08-0.2 times the diameter of the inner cylinder of the nozzle and the depth of the spiral grooves is 0.2-0.4 times the width of the spiral grooves to have the appropriate ratio between the length of the nozzle and the grooves so that when the jet exiting the nozzle, it swirled.

Applicant respectfully traverses.

The only question of design choice would be the construction of a laser machining head, but there is no design choice in view of Kaga et al. in the production of a water jet device.

Where the reference Kaga et al fails completely to teach an inner cylindrical shape of the end section of the applicant's separating nozzle, it appears to be preposterous to allege that the details claimed by the applicant regarding this inner cylindrical shape are obvious over the reference Kaga et al., where the reference Kaga et al. nowhere contemplates an end section of the nozzles having even an inner cylindrical shape,

The Office Action refers to Response to Arguments.

5. Applicant's arguments filed February 06, 2004 have been fully considered but they are not persuasive. The claims have been addressed in the above paragraphs.

The Examiner does not recognize "the gas mixture performs any cutting operation" cited in the claims. The claimed invention teaches an apparatus having a nozzle with grooves so that when the gas exiting the nozzle, it rotates. Kaga et al. teaches an apparatus that performs the same function.

Applicant respectfully submits that Kaga et al. clearly teach laser cutting and not gas cutting. The reference Kaga et al. in column 1, lines 24 to 28 states: "Especially, in case of cutting steel and so on, the metal which is melted by direct laser beam heating is not only blown off by an oxygen jet flow used as an assist gas, but is also sublimated or melted with a strong oxidizing burning reaction, which improves cutting efficiency." Since the water-jet of the present application clearly avoids "a strong oxidized burning reaction", the reference Kaga et al. does not perform the same function in contrast to such allegation in the Office Action.

As to the allegation of the Office action that the reference Kaga et al. teaches that "the gas exiting the nozzle, it rotates", let the reference speak for itself in Kaga et al., column 8, lines 18 through 23 as follows: "In the third embodiment, a plurality of static wings twisted in a screw shape are mounted on the inner surface of the main assist nozzle 1 for causing twisting flows which increases the pressure and flow velocity fluctuation of the main assist gas flow.". Thus the reference Kaga et al. says the static wings are for inducing velocity fluctuations in another gas flow. In summary, the reference Kaga et al. completely fails to teach anything whatsoever about a production of a rotary water-jet device.

Reconsideration of all outstanding rejections is respectfully requested.

All claims as presently submitted are deemed to be in form for allowance and an early notice of allowance is earnestly solicited.

Respectfully submitted,

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